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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/746,822	12/22/2000	Mohammed N. Islam	068069.0110	8908
7590		08/22/2005	EXAMINER	
Douglas M. Kuehl		PHAN, HANH		
Baker Botts L.L.P.		ART UNIT		
2001 Ross Avenue		PAPER NUMBER		
Dallas, TX 75201-2980		2638		

DATE MAILED: 08/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/746,822

Applicant(s)

ISLAM ET AL.

Examiner

Hanh Phan

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 22 December 2000.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,2,4-13,25-28,30-33,39 and 41-45 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1,2,4-13,25,27,28,30-33,39,41 and 42 is/are allowed.
- 6) ☒ Claim(s) 26 and 43-45 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### DETAILED ACTION

1. This Office Action is responsive to the Amendment filed 03/04/2005.

#### *Drawings*

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the features **"a beam splitter operable to receive the optical input signal and split the optical input signal into a first copy and a second copy, the wavelength division demultiplexer separating the first copy into the plurality of input wavelengths, wherein the first copy and the second copy of the optical input signal comprises unequal amplitude"** and **"the optical output signal and the second copy of the optical input signal are combined at an out port"** specified in claims 44 and 45 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering

of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 44 and 45 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

-Regarding claims 44 and 45, the phrases "**a beam splitter operable to receive the optical input signal and split the optical input signal into a first copy and a second copy, the wavelength division demultiplexer separating the first copy into the plurality of input wavelengths, wherein the first copy and the second copy of the optical input signal comprises unequal amplitude**" and "**the optical output signal and the second copy of the optical input signal are combined at an out port**" are not described in the specification.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 26 and 43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kiang et al (US Patent No. 6,449,407) and further in view of Judy et al (US Patent No. 5,945,898).

Regarding claims 26 and 43, referring to Figure 4, Kiang discloses a wave division add/drop multiplexer, comprising:

a wavelength division demultiplexer (i.e., demultiplexer 402, Fig. 4) operable to separate an optical input signal into a plurality of wavelengths;

an array of optical add/drop multiplexers (i.e., mirrors 401, add ports 408 and drop ports 406, Fig. 4) coupled to the demultiplexer (402), at least one of the add/drop multiplexers comprising a micro-electro-optic system (MEMs) device (col. 1, lines 29-52), the MEMS device comprising:

a moveable mirror operable to change its position, the position of the moveable mirror affecting whether the input wavelength is passed through or dropped from the array (col. 6, lines 22-58); and

a wavelength division multiplexer (i.e., wavelength division multiplexer 404, Fig. 4) operable to receive a plurality of output wavelengths from the array and to multiplex

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at least some of the output wavelengths into an optical output signal (col. 6, lines 22-58).

Kiang differs from claims 26 and 43 in that he fails to specifically teach the MEMs device comprising an inner conductive layer disposed inwardly from the moveable mirror and forming a space between the moveable mirror and the inner conductive layer wherein the moveable mirror comprises an at least substantially conductive layer operable to move relative to the inner conductive layer in response to a voltage difference between the moveable mirror and the inner conductive layer. However, Judy in US Patent No. 5,945,898 teaches an MEMs device comprising an inner conductive layer disposed inwardly from the moveable mirror and forming a space between the moveable mirror and the inner conductive layer wherein the moveable mirror comprises an at least substantially conductive layer operable to move relative to the inner conductive layer in response to a voltage difference between the moveable mirror and the inner conductive layer (Fig. 1, col. 3, lines 32-67 and col. 4, lines 10-37). Therefore, it would have been obvious to one having skill in the art at the time the invention was made to incorporate the MEMs device comprising inner conductive layer disposed inwardly from the moveable mirror and forming a space between the moveable mirror and the inner conductive layer wherein the moveable mirror comprises an at least substantially conductive layer operable to move relative to the inner conductive layer in response to a voltage difference between the moveable mirror and the inner conductive layer as taught by Judy in the system of Kiang. One of ordinary skill in the art would have been motivated to do this since Judy suggests in column 3, lines 32-67 and col. 4,

lines 10-37 that using such the MEMs device comprising an inner conductive layer disposed inwardly from the moveable mirror and forming a space between the moveable mirror and the inner conductive layer wherein the moveable mirror comprises an at least substantially conductive layer operable to move relative to the inner conductive layer in response to a voltage difference between the moveable mirror and the inner conductive layer have advantage of allowing the deflecting or passing an incident light beam rapidly.

7. Claims 26 and 43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kiang et al (US Patent No. 6,449,407) and further in view of Behin et al (US Patent No. 6,897,539).

Regarding claims 26 and 43, referring to Figure 4, Kiang discloses a wave division add/drop multiplexer, comprising:

a wavelength division demultiplexer (i.e., demultiplexer 402, Fig. 4) operable to separate an optical input signal into a plurality of wavelengths;

an array of optical add/drop multiplexers (i.e., mirrors 401, add ports 408 and drop ports 406, Fig. 4) coupled to the demultiplexer (402), at least one of the add/drop multiplexers comprising a micro-electro-optic system (MEMs) device (col. 1, lines 29-52), the MEMS device comprising:

a moveable mirror operable to change its position, the position of the moveable mirror affecting whether the input wavelength is passed through or dropped from the array (col. 6, lines 22-58); and

a wavelength division multiplexer (i.e., wavelength division multiplexer 404, Fig. 4) operable to receive a plurality of output wavelengths from the array and to multiplex at least some of the output wavelengths into an optical output signal (col. 6, lines 22-58).

Kiang differs from claims 26 and 43 in that he fails to specifically teach the MEMs device comprising an inner conductive layer disposed inwardly from the moveable mirror and forming a space between the moveable mirror and the inner conductive layer wherein the moveable mirror comprises an at least substantially conductive layer operable to move relative to the inner conductive layer in response to a voltage difference between the moveable mirror and the inner conductive layer. However, Behn in US Patent No. 6,897,539 teaches an MEMs device comprising an inner conductive layer disposed inwardly from the moveable mirror and forming a space between the moveable mirror and the inner conductive layer wherein the moveable mirror comprises an at least substantially conductive layer operable to move relative to the inner conductive layer in response to a voltage difference between the moveable mirror and the inner conductive layer (Fig. 1, col. 5, lines 40-67 and col. 6, lines 1-17). Therefore, it would have been obvious to one having skill in the art at the time the invention was made to incorporate the MEMs device comprising inner conductive layer disposed inwardly from the moveable mirror and forming a space between the moveable mirror and the inner conductive layer wherein the moveable mirror comprises an at least substantially conductive layer operable to move relative to the inner conductive layer in response to a voltage difference between the moveable mirror and the inner conductive



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layer as taught by Behin in the system of Kiang. One of ordinary skill in the art would have been motivated to do this since Behin suggests in column 5, lines 40-67 and col. 6, lines 1-17 that using such the MEMs device comprising an inner conductive layer disposed inwardly from the moveable mirror and forming a space between the moveable mirror and the inner conductive layer wherein the moveable mirror comprises an at least substantially conductive layer operable to move relative to the inner conductive layer in response to a voltage difference between the moveable mirror and the inner conductive layer have advantage of allowing the deflecting or passing an incident light beam rapidly.

8. Claims 26 and 43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Goldstein et al (US Patent No. 6,928,244) and further in view of Judy et al (US Patent No. 5,945,898).

Regarding claims 26 and 43, referring to Figures 2-9, Goldstein discloses a wave division add/drop multiplexer, comprising:

a wavelength division demultiplexer (i.e., demultiplexer 210, Fig. 2) operable to separate an optical input signal into a plurality of wavelengths;

an array of optical add/drop multiplexers (i.e., an array of optical add/drop multiplexers 220, Fig. 2) coupled to the demultiplexer (210), at least one of the add/drop multiplexers comprising a micro-electro-optic system (MEMs) device (280, Fig. 2), the MEMS device (280, Fig. 2) comprising:

a moveable mirror (i.e., micromirror 280, Fig. 2) operable to change its position, the position of the moveable mirror affecting whether the input wavelength is passed through or dropped from the array (col. 5, lines 10-65); and

a wavelength division multiplexer (i.e., wavelength division multiplexer 230, Fig. 2) operable to receive a plurality of output wavelengths from the array and to multiplex at least some of the output wavelengths into an optical output signal (col. 5, lines 10-67 and col. 6, lines 1-21).

Goldstein differs from claims 26 and 43 in that he fails to specifically teach the MEMs device comprising an inner conductive layer disposed inwardly from the moveable mirror and forming a space between the moveable mirror and the inner conductive layer wherein the moveable mirror comprises an at least substantially conductive layer operable to move relative to the inner conductive layer in response to a voltage difference between the moveable mirror and the inner conductive layer.

However, Judy in US Patent No. 5,945,898 teaches an MEMs device comprising an inner conductive layer disposed inwardly from the moveable mirror and forming a space between the moveable mirror and the inner conductive layer wherein the moveable mirror comprises an at least substantially conductive layer operable to move relative to the inner conductive layer in response to a voltage difference between the moveable mirror and the inner conductive layer (Fig. 1, col. 3, lines 32-67 and col. 4, lines 10-37).

Therefore, it would have been obvious to one having skill in the art at the time the invention was made to incorporate the MEMs device comprising inner conductive layer disposed inwardly from the moveable mirror and forming a space between the

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moveable mirror and the inner conductive layer wherein the moveable mirror comprises an at least substantially conductive layer operable to move relative to the inner conductive layer in response to a voltage difference between the moveable mirror and the inner conductive layer as taught by Judy in the system of Goldstein. One of ordinary skill in the art would have been motivated to do this since Judy suggests in column 3, lines 32-67 and col. 4, lines 10-37 that using such the MEMs device comprising an inner conductive layer disposed inwardly from the moveable mirror and forming a space between the moveable mirror and the inner conductive layer wherein the moveable mirror comprises an at least substantially conductive layer operable to move relative to the inner conductive layer in response to a voltage difference between the moveable mirror and the inner conductive layer have advantage of allowing the deflecting or passing an incident light beam rapidly.

9. Claims 26 and 43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Goldstein et al (US Patent No. 6,928,244) and further in view of Behin et al (US Patent No. 6,897,539).

Regarding claims 26 and 43, referring to Figures 2-9, Goldstein discloses a wave division add/drop multiplexer, comprising:

a wavelength division demultiplexer (i.e., demultiplexer 210, Fig. 2) operable to separate an optical input signal into a plurality of wavelengths;

an array of optical add/drop multiplexers (i.e., an array of optical add/drop multiplexers 220, Fig. 2) coupled to the demultiplexer (210), at least one of the

add/drop multiplexers comprising a micro-electro-optic system (MEMs) device (280, Fig. 2), the MEMS device (280, Fig. 2) comprising:

a moveable mirror (i.e., micromirror 280, Fig. 2) operable to change its position, the position of the moveable mirror affecting whether the input wavelength is passed through or dropped from the array (col. 5, lines 10-65); and  
a wavelength division multiplexer (i.e., wavelength division multiplexer 230, Fig. 2) operable to receive a plurality of output wavelengths from the array and to multiplex at least some of the output wavelengths into an optical output signal (col. 5, lines 10-67 and col. 6, lines 1-21).

Goldstein differs from claims 26 and 43 in that he fails to specifically teach the MEMs device comprising an inner conductive layer disposed inwardly from the moveable mirror and forming a space between the moveable mirror and the inner conductive layer wherein the moveable mirror comprises an at least substantially conductive layer operable to move relative to the inner conductive layer in response to a voltage difference between the moveable mirror and the inner conductive layer. However, Behin in US Patent No. 6,897,539 teaches an MEMs device comprising an inner conductive layer disposed inwardly from the moveable mirror and forming a space between the moveable mirror and the inner conductive layer wherein the moveable mirror comprises an at least substantially conductive layer operable to move relative to the inner conductive layer in response to a voltage difference between the moveable mirror and the inner conductive layer (Fig. 1, col. 5, lines 40-67 and col. 6, lines 1-17). Therefore, it would have been obvious to one having skill in the art at the time the

invention was made to incorporate the MEMs device comprising inner conductive layer disposed inwardly from the moveable mirror and forming a space between the moveable mirror and the inner conductive layer wherein the moveable mirror comprises an at least substantially conductive layer operable to move relative to the inner conductive layer in response to a voltage difference between the moveable mirror and the inner conductive layer as taught by Behin in the system of Goldstein. One of ordinary skill in the art would have been motivated to do this since Behin suggests in column 5, lines 40-67 and col. 6, lines 1-17 that using such the MEMs device comprising an inner conductive layer disposed inwardly from the moveable mirror and forming a space between the moveable mirror and the inner conductive layer wherein the moveable mirror comprises an at least substantially conductive layer operable to move relative to the inner conductive layer in response to a voltage difference between the moveable mirror and the inner conductive layer have advantage of allowing the deflecting or passing an incident light beam rapidly.

***Allowable Subject Matter***

10. Claims 1, 2, 4-13, 25, 27, 28, 30-33, 39, 41 and 42 are allowed.

***Response to Arguments***

11. Applicant's arguments with respect to claims 1, 2, 4-13, 25-28, 30-33, 39 and 41-43 have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hanh Phan whose telephone number is (571)272-3035.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kenneth Vanderpuye, can be reached on (571)272-3078. The fax phone number for the organization where this application or proceeding is assigned is (571)273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)305-4700.

  
**HANH PHAN**  
**PRIMARY EXAMINER**